



# Source Water Assessment and Protection (SWAP) Report For Cliffside Apartments

## What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

## SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the  
Massachusetts Department of  
Environmental Protection,  
Bureau of Resource Protection,  
Drinking Water Program

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**Table 1: Public Water System (PWS) Information**

<i><b>PWS Name</b></i>	<b>Cliffside Apartments</b>
<i><b>PWS Address</b></i>	<b>248 Amherst Road</b>
<i><b>City/Town</b></i>	<b>Sunderland, Massachusetts</b>
<i><b>PWS ID Number</b></i>	<b>1289001</b>
<i><b>Local Contact</b></i>	<b>Ms. Diane Hamill, Manager</b>
<i><b>Phone Number</b></i>	<b>413-665-3958</b>

<i><b>Well Name</b></i>	<i><b>Source ID#</b></i>	<i><b>Zone I (in feet)</b></i>	<i><b>IWPA (in feet)</b></i>	<i><b>Source Susceptibility</b></i>
Well #1	1289001-01G	310	953	Moderate
Well #2	1289001-02G	310	953	Moderate
Well #3	1289001-03G	310	953	Moderate

## Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

### Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

### This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

## 1. Description of the Water System

Cliffside Apartments complex is located on Route 116 in the center of the rural/residential and agricultural community of Sunderland. The complex has 280 residential units within nine buildings. Municipal sewer serves the community and there is natural gas pipeline and electric heat available; there is no on-site heating oil although there is an above ground propane tank. The facility is served by three bedrock wells

### What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

### What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

located on the side of the hill behind the facility. Although there is no information about Well #1, data indicate Well #2 is approximately 260 feet deep while Well #3 is approximately 277 feet deep. Well #3 serves as the main well with Well #1 and Well #2 supplementing the lead well. Historical information indicates casing to depths of approximately 50 feet in both wells #2 and #3 and all three wells have 5 hp pumps installed.

The Zone I is the protected area immediately surrounding the wellhead while the IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. Actual recharge areas to the wells may be significantly larger or smaller than the IWPA. The size of the Zone I and IWPA protective radii are based on the volume of water withdrawn from the well. Since there is only a master meter recording total usage, the Zone I and IWPA radial areas are based on an estimated withdrawal of approximately 17 gpm from each well. The Zone I and Interim Wellhead Protection Area (IWPA) radii for all three wells are 310 feet and 953 feet, respectively.

The apartments are located on the edge of the Connecticut River valley floor with the majority of the facility located within the valley and the sources located on the hill behind the facility. The valley is a bedrock valley filled with sand and gravel during the glacial retreat (melting) some 10,000 years ago. The bedrock in the area is mapped as the sedimentary rocks of the Turners Falls and Sugarloaf Formations and the metamorphic Joshua Schist to the west of long Plain Brook in Leverett. There is no evidence of a protective confining unit in the vicinity of the wells. Wells located in this type of an aquifer are considered to be highly vulnerability to contamination due to the absence of hydrogeologic barriers, such as clay, that can prevent contaminant migration from the surface.

At the time this report was prepared, the water at Cliffside Apartments did not require treatment. For current information on water quality monitoring results, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Please refer to the attached map of the Zone I and IWPA and Table 1 for additional information regarding the location of the well and activities within the protection areas.

## 2. Discussion of Land Uses in the Protection Areas

There are several activities within the drinking water supply protection areas that are potential sources of contamination.

**Table 2: Table of Activities within the Water Supply Protection Areas**

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
High density residential housing	No	Yes	Moderate	Use BMPs, encourage participation in household hazardous waste collection days. Prohibit vehicle maintenance.
Transportation corridors and parking	No	Yes	Moderate	Limit road salt usage and provide stormwater drainage away from well.
Public access	Yes	Yes	Moderate	Secure wellheads from vandalism and access.
Maintenance garage	No	Yes	Moderate	Use BMPs, review usage to determine if hazardous waste generator registration is required.

\* For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/).

## Glossary

**Zone I:** The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

**IWPA:** A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

**Zone II:** The primary recharge area defined by a hydrogeologic study.

**Aquifer:** An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

**Hydrogeologic Barrier:** An underground layer of impermeable material that resists penetration by water.

**Recharge Area:** The surface area that contributes water to a well.

## Key issues include:

1. **Nonconforming Zone 1**
2. **High density residential housing,**
3. **Transportation corridors/parking,**
4. **Maintenance garage.**

The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of several moderate threat land uses or activities in the IWPA, as seen in Table 2.

**1. Nonconforming Zone I** – Currently, the water supplier does not own or control the entire Zone I area for the wells. Please note that systems not meeting DEP Zone I requirements for ownership or control must get DEP approval and address Zone I ownership prior to increasing water use or modifying systems. There are only passive non-water supply activities occurring within the Zone I, such as trails. However, there is evidence that hiking and trail bikes are used along the trails. There is also anecdotal information about incidents of minor vandalism to the wellheads.

## Recommendations:

- ✓ Control access to the wellheads. Consider fencing in the wellheads and prohibiting access to the wells.
- 2. Residential Land Uses** – The entire facility is located within the IWPA of the wells. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
  - **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

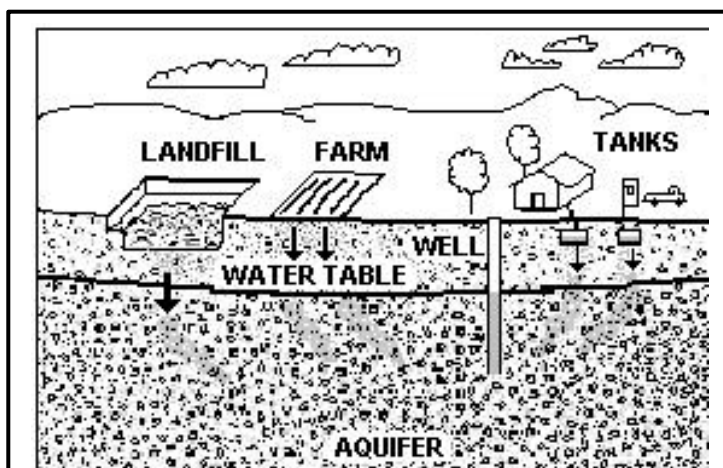


Figure 1: Example of how a well could become contaminated by different land uses and activities.

## Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on [www.mass.gov/dep/brp/dws/protect.htm](http://www.mass.gov/dep/brp/dws/protect.htm), which provides BMPs for common residential issues.
- ✓ Promote BMPs for stormwater management and pollution controls.

**4. Transportation corridors/parking** -- The Zone I and IWPA contain a municipal road, internal roads and parking. Transportation corridors can be a potential source of contamination from road salt and automotive leaks or spills. As storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential sources of contamination include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, etc.

#### For More Information:

Contact Catherine Skiba in DEP's Western Region Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

[www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/)

#### Additional Documents:

To help with source protection efforts, more information is available by request or online at [www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/), including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and the town boards.

#### Recommendations:

- ✓ Monitor parking areas and roads for accidental leaks and spills.
- ✓ Do not allow vehicle maintenance at the facility unless strictly limited and controlled.
- ✓ Continue the current practice of not using salt or deicers within the Zone I.

Encourage residents to utilize local household hazardous waste collection days and supply information about BMPs for household hazardous waste management.

### 3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Cliffside Apartments is commended for initial design of the system and efforts to minimize access to the wellhead efforts to protect the water supply. You are encouraged to review and adopt the key recommendations listed in the Wellhead Protection Plan, those listed above and those following:

#### Priority Recommendations:

- V Prohibit public access to the well by locking facilities and installing a fence as necessary. Fencing is an eligible project under the Department's competitive Wellhead Protection Grant Program. If funds are available, each spring DEP posts a new Request for Response for the grant program (RFR). Visit the DEP websites for information at <http://www.state.ma.us/dep/brp/mf/othergrt.htm> and <http://www.state.ma.us/dep/brp/dws/grants.htm>.

#### Zone I:

- V Prohibit any new non-water supply activities in Zone I.
- V Conduct regular inspections of the Zone I. Look for illegal dumping and evidence of vandalism.
- V Use BMPs within the Zone I and restrict activities that could pose a threat to the water supply.
- V If it is not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

#### Training and Education:

- V Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and the certified operator. Post labels as appropriate on raw materials and hazardous waste.
- V Post drinking water protection area signs at key visibility locations away from the wellhead.

#### Facilities Management:

- V Review uses within the maintenance department and facilities and implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.
- V Upgrade all hazardous material storage tanks to incorporate proper containment and safety practices.
- V Encourage or supply opportunities for use of household hazardous waste drop off.
- V For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

**Planning:**

- ✓ Work with local officials in Sunderland to include Cliffside Apartments IWPA in Aquifer Protection District Bylaws, and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available. Refer to the Wellhead protection Plan prepared for your facility and follow the recommendations.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

**Funding Sources:**

The Department's Source Protection Grant Program provides funds to assist public water suppliers and their partners in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under this grant program. Please note: if funds are available, each spring DEP posts a new Request for Response for the grant program (RFR). Visit the DEP <http://www.state.ma.us/dep/brp/mf/othergrt.htm> and <http://www.state.ma.us/dep/brp/dws/grants.htm> for information about available funds.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to promote discussion of local drinking water protection measures.

**4. Attachments**

- Map of the Public Water Supply (PWS) Protection Area.
- Source Protection Measures Fact Sheet